ENGINEERING AND TRAFFIC SURVEY FOR SPEED ZONING

December 2014

Prepared by the Traffic Division
of the Engineering Department
City of Eureka, California

This page left blank

CITY OF EUREKA
RADAR SPEED SURVEY

INDEX **Page No.**

INTRODUCTION

SPEED LIMITS

WHAT THE LAW REQUIRES

The California Vehicle Code requires that speed zoning be based on a measurement of the prevailing speed of traffic and careful assessment of hazards of an unusual nature. The language of the Code reflects the sensible point of view that speed zoning, like other types of traffic control, should be based on traffic **conditions** and not be simply a hurried response to a traffic **event.**

HOW SPEED LIMITS ARE SET

Speed limits established by California Vehicle Code are:

- 15 mph in alleys.
- 15 mph at railroad crossings.
- 25 mph in school zones.
- 25 mph in a residence or business district.
- 25 mph when passing a senior citizens facility.

Other streets that are not defined as a local street or road require an engineering and traffic survey to determine the speed limit.

An engineering and traffic survey is conducted using a sampling of the speeds of 100 free-flowing vehicles. The highest speed that 85% of the vehicles are traveling is determined by the survey. This is called the 85th percentile speed. This 85th percentile speed is used as a guideline in determining the speed limit.

Factors such as land use, pedestrian activity, accident history and curves in the road are also considered and can account for speed limits set below the 85th percentile speed.

ENGINEERING AND TRAFFIC SURVEY

The California Vehicle Code authorizes local authorities to increase or decrease certain speed limits on their highways on the basis of an “engineering and traffic survey.” This survey is defined in Section 627 of the Vehicle Code:

CVC Section 627. (a) "Engineering and traffic survey," as used in this code, means a survey of highway and traffic conditions in accordance with methods determined by the Department of Transportation for use by state and local authorities.

(b) An engineering and traffic survey shall include, among other requirements deemed necessary by the department, consideration of all of the following:

(1) Prevailing speeds as determined by traffic engineering measurements.

(2) Accident records.

(3) Highway, traffic, and roadside conditions not readily apparent to the driver.

(c) When conducting an engineering and traffic survey, local authorities, in addition to the factors set forth in paragraphs (1) to (3), inclusive, of subdivision (b) may consider all of the following:

(1) Residential density, if any of the following conditions exist on the particular portion of highway and the property contiguous thereto, other than a business district:

(A) Upon one side of the highway, within a distance of a quarter of a mile, the contiguous property fronting thereon is occupied by 13 or more separate dwelling houses or business structures.

(B) Upon both sides of the highway, collectively, within a distance of a quarter of a mile, the contiguous property fronting thereon is occupied by 16 or more separate dwelling houses or business structures.

(C) The portion of highway is longer than one-quarter of a mile but has the ratio of separate dwelling houses or business structures to the length of the highway described in either subparagraph (A) or (B).

(2) Pedestrian and bicyclist safety.

In almost every case, speed zoning is based largely on the results of the measurement of prevailing speeds. These speeds are determined by a series of “spot speed” studies - a check of the speeds of vehicles passing a given point.

This report contains sufficient information to document that the conditions of the latest edition of the California Vehicle Code Section 627 have been satisfied and that other conditions not readily apparent to a motorist are properly identified.

In accordance with the requirements of the California Vehicle Code stating that an Engineering Traffic Survey must be conducted every 5 years on streets under radar surveillance, the City of Eureka Engineering Department submits this report.

STREETS SURVEYED

	Street	Boundaries
1.	B Street…….	7th Street to Harris Street
2.	Buhne Street……	Fairfield Street to Harrison Avenue
3.	California Street ……..……	7th Street to Harris Street
4.	Campton Road……	Oak Street to South City Limits
5.	Central Avenue……	Harris Street to South Avenue
6.	Dolbeer Street…….	Harris Street to Hemlock Street
7.	E Street…….	7th Street to South City Limits
8.	F Street …….	Harris Street to South City Limits
9.	Fairfield Street……	Wabash Avenue to Harris Street
10.	Fairway Drive…….	F Street to South City Limits
11.	14th Street…….	Broadway to West Avenue
12.	Glen Street……	Harris Street to Allard Avenue
12.	H Street…….	7th Street to Oak Street
13.	Harris Street…….	Broadway to Harrison Avenue
14.	Harrison Avenue……	Myrtle Avenue to Manzanita Avenue
15.	Henderson Street……..	Broadway to S Street
16.	Hodgson Street ……	Street to W Street
17.	I Street…….	7th Street to Harris Street
18.	J Street …….	7th Street to Harris Street
19.	M Street…….	7th Street to 14th Street
20.	McCullens Avenue……	Broadway to Glen Street
21.	McFarlan Street …….	Myrtle Avenue to Hillside Drive

22. Myrtle Avenue…….. 5th Street to Harrison Avenue

23. S Street…….. County Lane to Harris Street

24. 7th Street……. Broadway to Myrtle Avenue

25. 6th Street……. Broadway to Myrtle Avenue

26. Union Street…….. Wabash Avenue to South City Limits

27. Wabash Avenue…….. Broadway to H Street

28. West Avenue…… 5th Street to County Lane

SECTION I

SUMMARY OF RADAR SURVEY RESULTS

Shown below are the streets surveyed, boundaries of each segment, present speed limits, and the recommended speed limit based on the use of radar. Streets surveyed include arterial and collector streets as shown on the 2014 Functional Classification map included on page 8 of this survey and as required by Section 40802 of the California Vehicle Code.

There were a total of 73 street segments monitored for this survey. At those locations where the critical (85th percentile) speed for the opposing lanes of traffic indicate different speed limits, the data was combined and then the composite speed was used.

There are 4 street segments where the speed limit would need to be raised in order to utilize radar enforcement. These locations are listed below:

Street Name	Boundaries	Present Speed Limit MPH	To Use Radar Speed Limit MPH
Fairway Drive	F to Lundblade Lundblade to South City Limits	30 30	35 35
Harrison Avenue	Harris to Manzanita	25	30
McFarlan Street	Myrtle to Hillside	25	30

Harrison Avenue from Harris to Manzanita is a major collector street that has not been included in our surveys in the past and has no speed limit signing. To allow use of radar it must be included in the survey.

At this time there is no recommendation to raise the speed limits on Fairway Drive or McFarlan Street.

There are 43 street segments where the speed limit can remain as posted and utilize radar enforcement. These locations are listed below:

Street Name	Boundaries	Present Speed Limit MPH	Recommended Speed Limit MPH
Buhne Street	J to Harrison	30	30
Central Avenue	Harris to South Ave.	30	30
E Street	14th to Henderson Henderson to Harris Harris to Orchard Orchard to South City Limits	30 25 30 30	30 25 30 30
F Street	Harris to Orchard Orchard to South City Limits	30 30	30 30

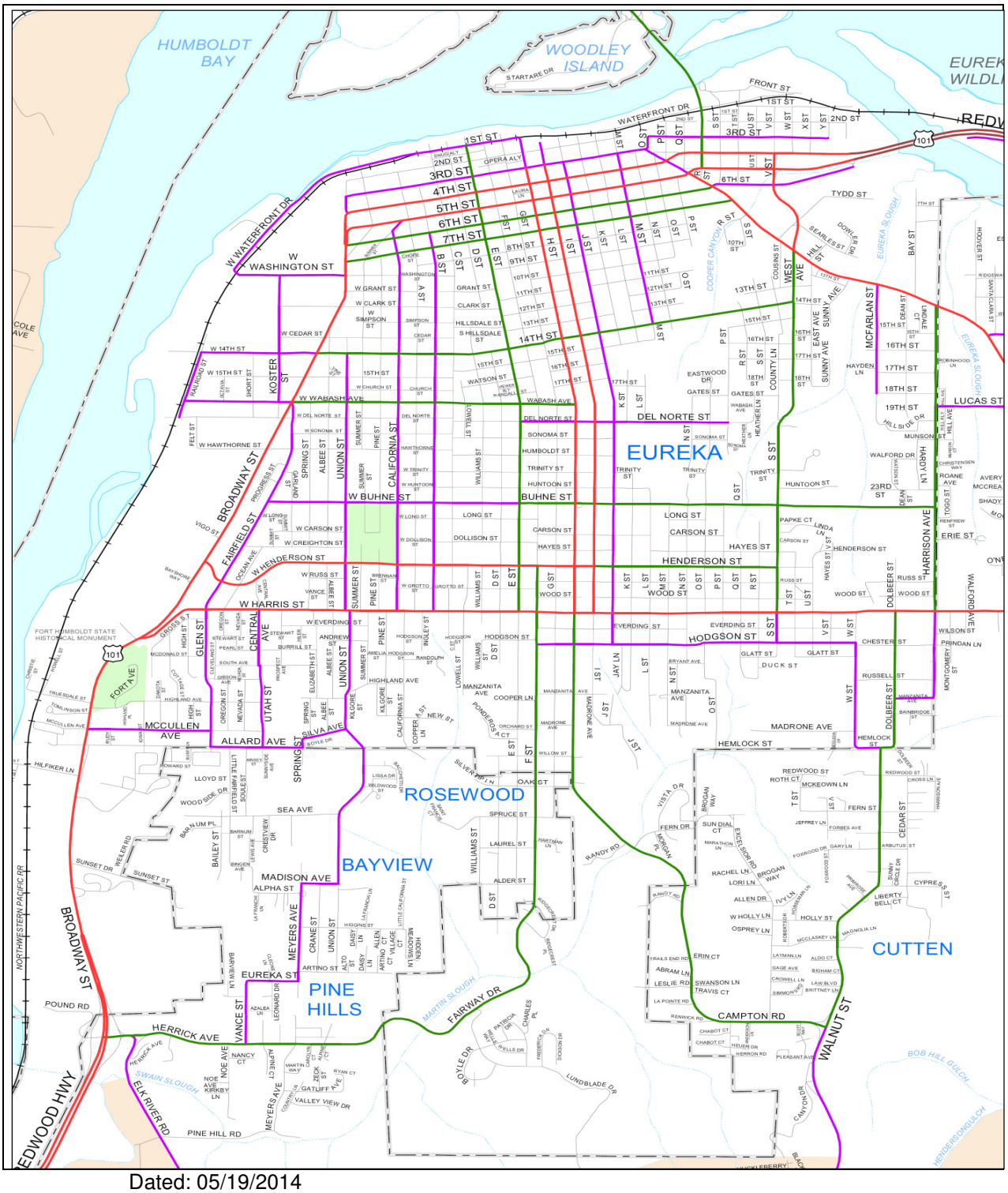
Fairfield Street	Wabash to Buhne Buhne to Harris	30 30	30 30
14th Street	Broadway to California California to J J to M M to West	25 25 30 30	25 25 30 30
Glen Street	Harris to Gibson	30	30
H Street	Manzanita to Oak	35	35
Harris Street	Broadway to California California to I I to R R to Harrison	30 30 30 30	30 30 30 30
Harrison Avenue	Myrtle to Lucas	30	30
Henderson Street	Broadway to California California to I I to M M to S	30 30 30 30	30 30 30 30
Hodgson Street	F to N N to W	30 30	30 30
J Street	7th to 14th 14th to Buhne Buhne to Harris	30 30 30	30 30 30
McCullens Avenue	Broadway to Glen	30	30
Myrtle Avenue	West to Harrison	35	35
S Street	County Ln. to Buhne Buhne to Harris	30 30	30 30
7th Street	J to O O to Myrtle	30 30	30 30
6th Street	Broadway to J J to O O to Myrtle	25 25 30	25 25 30
Wabash Avenue	Broadway to H	30	30
West Avenue	5th to Myrtle Myrtle to 14th 14th to County Lane	25 30 30	25 30 30

There are 25 street segments where the speed limit can be lowered and still utilize radar enforcement. These locations are listed below:

Street Name	Boundaries	Present Speed Limit MPH	Recommended Speed Limit MPH
B Street	7th to Wabash Wabash to Buhne	30 30	25 25
Buhne Street	Fairfield to E E to J	30 30	25 25
California Street	7th to Wabash Wabash to Buhne Buhne to Harris	30 30 30	25 25 25
Campton Road	Oak to South City Limits	40	35
Dolbeer Street	Harris to Hemlock	30	25
E Street	7th to 14th	30	25
Glen Street	Gibson to Allard	30	25
H Street	7th to 14th 14th to Buhne Buhne to Harris Harris to Manzanita	35 35 35 35	30 30 30 30
Harrison Avenue	Lucas to Eire Eire to Harris	30 30	25 25
I Street	7th to 14th 14th to Buhne Buhne to Harris	35 35 35	30 30 30
M Street	7th to 14th	30	25
Myrtle Avenue	5th to West	35	30
7th Street	Broadway to J	30	25
Union Street	Wabash to Harris Harris to South City Limits	30 30	25 25

There is one section where the recommendation is to lower the existing speed limit and radar cannot be used for enforcement. This is to create a uniform speed limit along this corridor. The location is listed below:

Street Name	Boundaries	Present Speed Limit MPH	Recommended Speed Limit MPH
B Street	Buhne to Harris	30	25

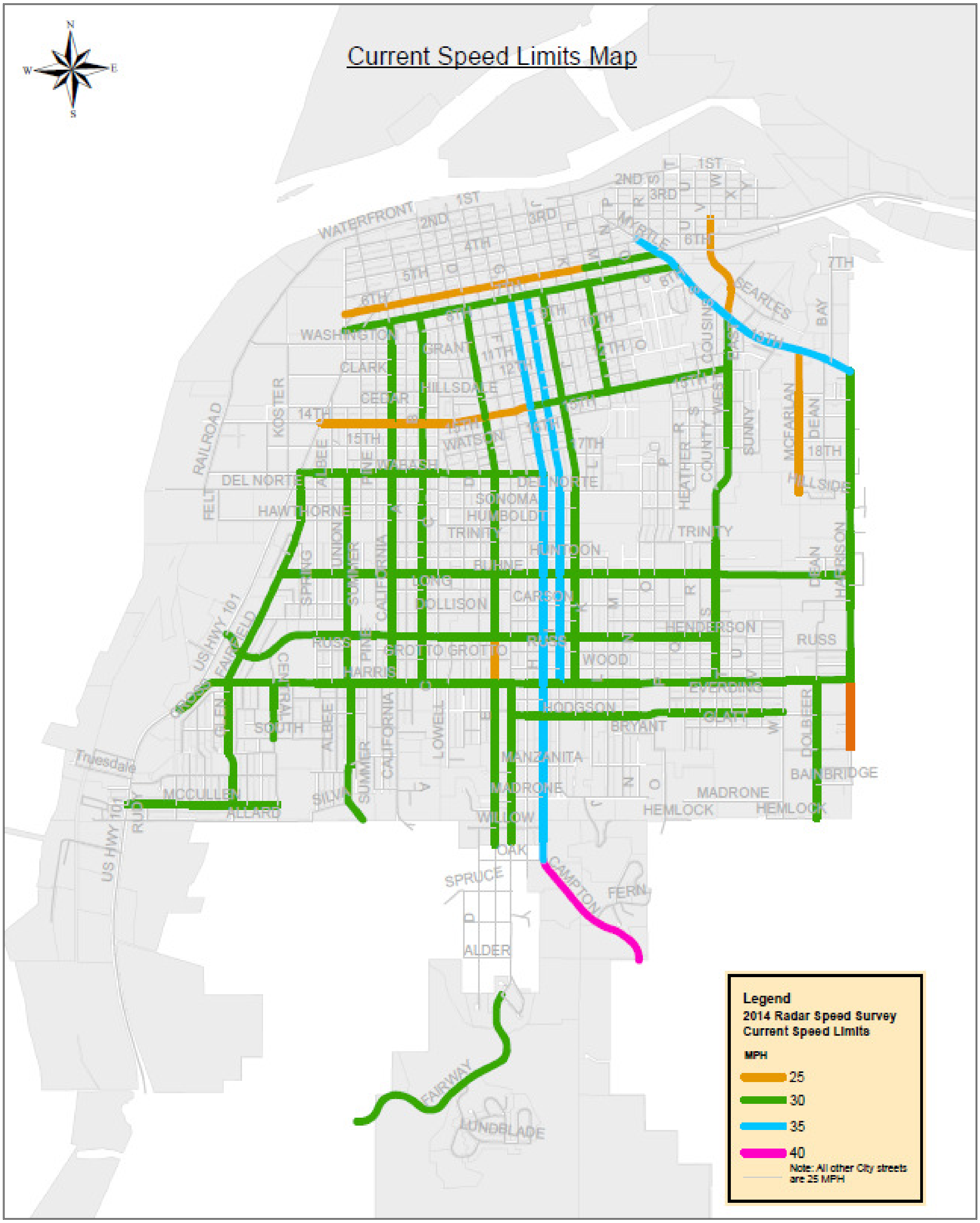


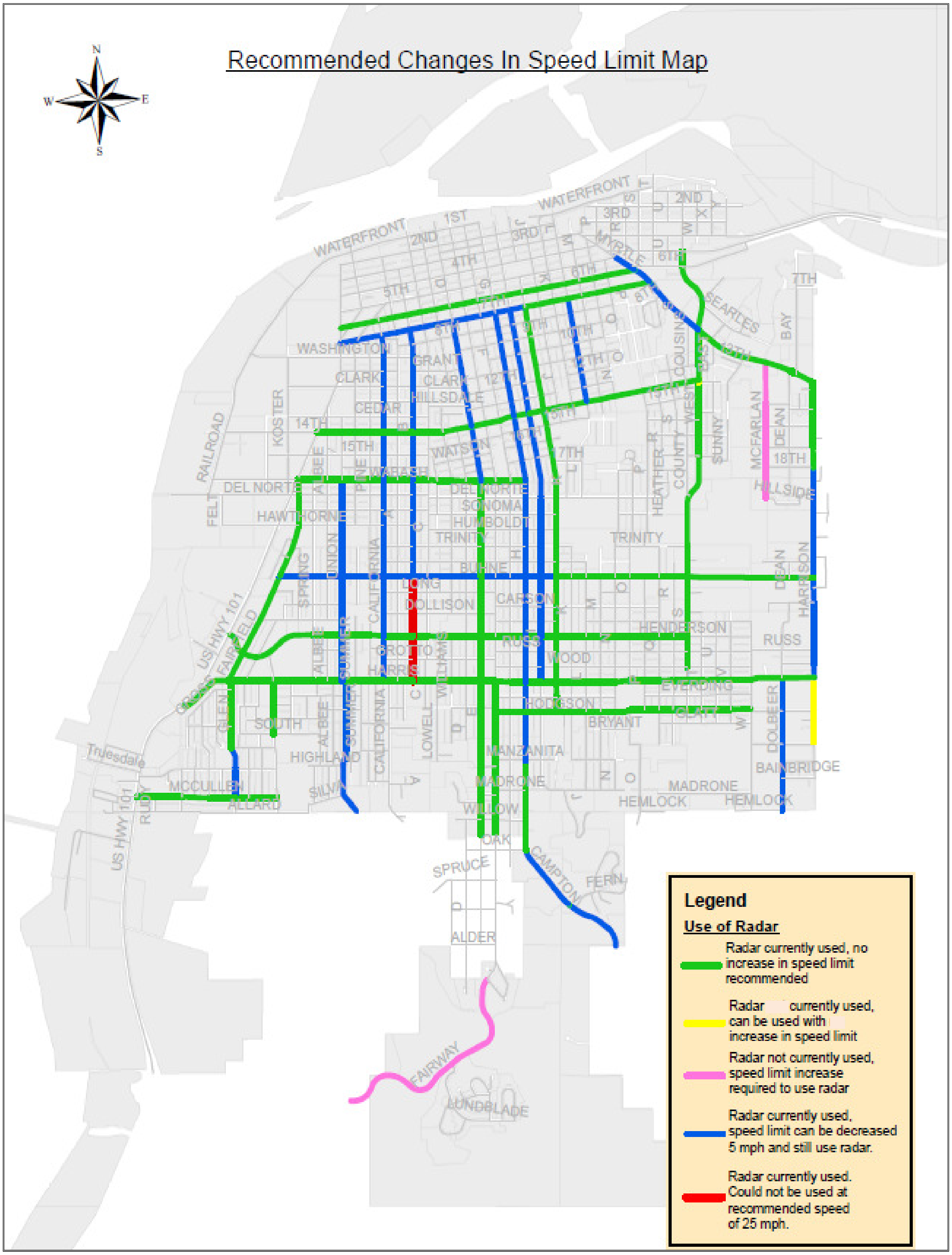
Dated: 05/19/2014

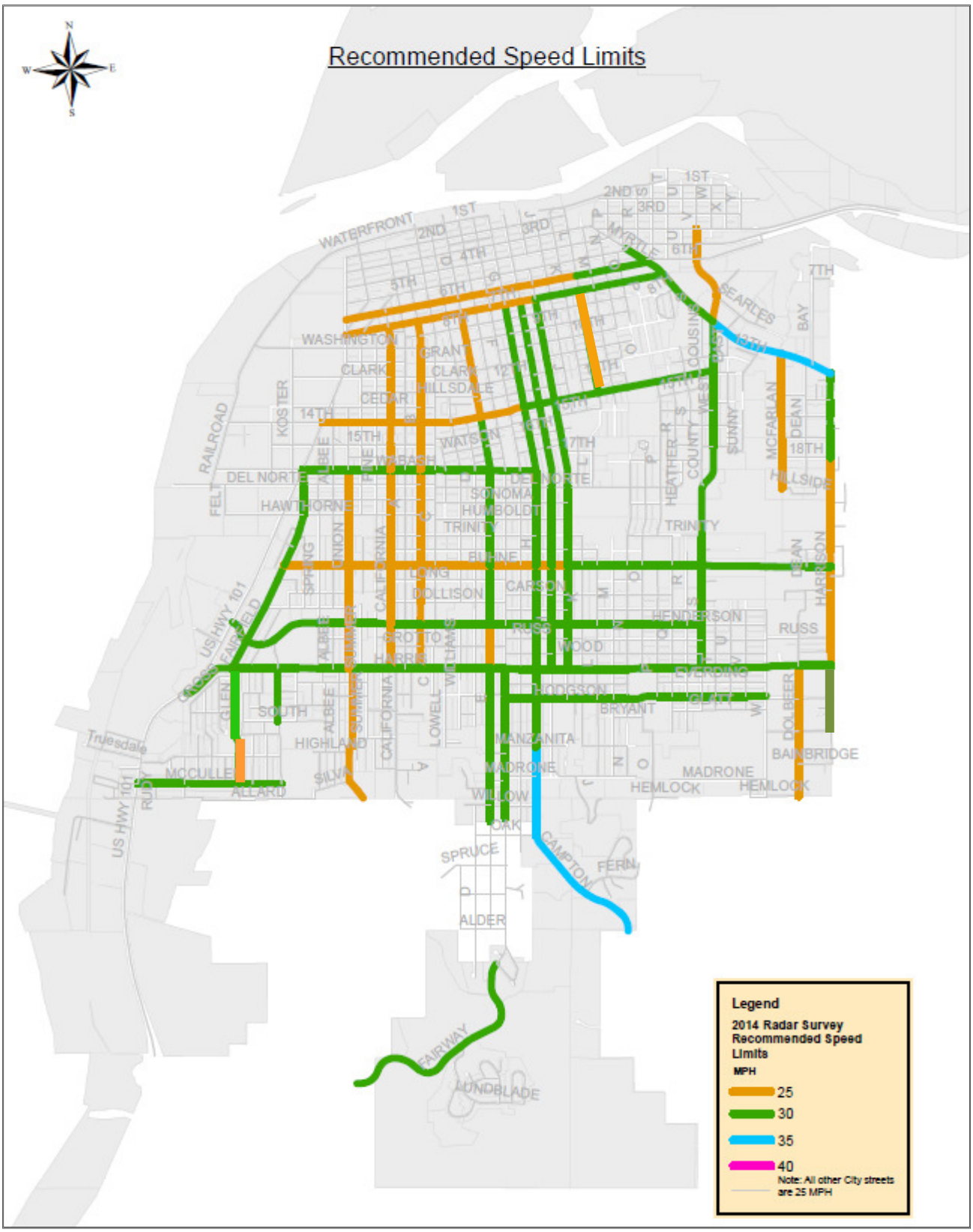
APPROVED
FEDERAL HIGHWAY ADMINISTRATION
Wesley Rutledge-Rice
FOR: VINCENT P. MAMMANO
DIVISION ADMINISTRATOR

FUNCTIONAL CLASSIFICATION SYSTEM

URBAN		RURAL
INTERSTATE 11		01 INTERSTATE
OTHER FWY OR EXPWY 12		
OTHER PRINCIPAL ARTERIAL 14		02 OTHER PRINCIPAL ARTERIAL
MINOR ARTERIAL 16		06 MINOR ARTERIAL
COLLECTOR 17		07 MAJOR COLLECTOR
		08 MINOR COLLECTOR
LOCAL 19		09 LOCAL


Current Speed Limits Map
N
S
W
E
Legend
2014 Radar Speed Survey
Current Speed Limits
MPH
25
30
35
40
Note: All other City streets are 25 MPH
WATERFRONT
1ST
2ND
3RD
4TH
5TH
6TH
7TH
8TH
MYRTLE
SEARLES
WASHINGTON
GRANT
CLARK
CEDAR
HILLSDALE
14TH
15TH
WATSON
RAILROAD
KOSTER
FELT
DEL NORTE
HAWTHORNE
SONOMA
HUMBOLDT
TRINITY
HUNTOON
BUHNE
LONG
DOLLISON
CARSON
HENDERSON
RUSS
GROTTO
HARRIS
WOOD
EVERDING
HODGSON
BRYANT
CLAY
SOUTH
MANZANITA
MADRONE
WILLOW
OAK
SPRUCE
CAMPTON
FERN
ALDER
FAIRWAY
LUNDBLADE
HEMLOCK
BAINBRIDGE
DOLBEER
HARRISON
DEAN
MCFARLAN
HILLSIDE
18TH
SUNNY
COUNTY
HEATHER
COUSINS
BAY
SPRING
UNION
SUMMER
CALIFORNIA
PINE
ALBEE
CENTRAL
LOWELL
GLEN
MCCULLENS
ALLARD
RUDY
US HWY 101
FAIRFIELD
Truesdale


Recommended Changes In Speed Limit Map
N
S
E
W
Legend
Use of Radar
Radar currently used, no increase in speed limit recommended
Radar currently used, can be used with increase in speed limit
Radar not currently used, speed limit increase required to use radar
Radar currently used, speed limit can be decreased 5 mph and still use radar.
Radar currently used. Could not be used at recommended speed of 25 mph.


Recommended Speed Limits
N
W
E
S
WATERFRONT
1ST
2ND
3RD
4TH
5TH
6TH
7TH
WASHINGTON
CLARK
GRANT
CEDAR
HILLSDALE
14TH
15TH
WATSON
17TH
18TH
HILLSIDE
DEL NORTE
SONOMA
HUMBOLDT
TRINITY
HAWTHORNE
WABASH
BUHNE
LONG
DOLLISON
CARSON
HENDERSON
RUSS
WOOD
EVERDING
HODGSON
BRYANT
SOUTH
HIGHLAND
MANZANITA
MADRONE
HEMLOCK
BAINBRIDGE
MCCULLEN
ALLARD
WILLOW
OAK
SPRUCE
FERN
ALDER
CAMPTON
FAIRWAY
LINDBLADE
Truesdale
US HWY 101
RAILROAD
KOSTER
FELT
ALBEE
SUMMER
CALIFORNIA
LOWELL
WILLIAMS
GROTTO
SEARLES
BAY
SUNNY
MCFARLAN
DEAN
HARRISON
DOLBEER
Legend
2014 Radar Survey Recommended Speed Limits
MPH
25
30
35
40
Note: All other City streets are 25 MPH

SECTION II

SURVEY RESULTS AND RECOMMENDATIONS

This section is a summary of the street segments surveyed and compares the critical speed (85% Speed) obtained with the speed limit presently being enforced and provides recommendations for revising speed limits and the basis for these recommendations.

The appendix covering “Field Survey Data” provides the necessary backup for this section.

Several short sections of streets have had the speed limit raised or lowered as allowed by the California Manual on Uniform Traffic Control Devices and the California Vehicle Code. The justification for recommended changes from the 85th percentile speed is noted with each street section and is shown below.

Justification for reducing or increasing speed limit on individual street segments:

1. Recommended speed lowered 5 mph based on residential or business density. (CVC 627)

2. Recommended speed lowered 5 mph based on pedestrian and bicycle safety. (CVC 627)

3. Recommend speed limit lowered to conform to larger portion of street.

4. Recommended speed limit raised to conform to larger portion of street.

5. Recommended speed limit lowered to maintain uniformity on a boundary street. Jurisdiction is shared with County of Humboldt.

6. Recommended speed limit has been lowered as street borders school or park with several school crosswalks and/or high pedestrian activity.

7. Recommended speed limit has been lowered as street borders “senior citizens” facility.

8. Recommended speed limit raised or lowered on basis of cumulative speeds.

9. Recommended speed rounded down to nearest 5 MPH increment. (CVC 21400.b)

2014 RADAR SPEED SURVEY

					85TH % SPEED			SPEED LIMIT		Coll.*	
NO.	LOCATION OF SURVEY	SURVEY DATE	BOUNDARIES	DIRECTION	2004	2009	2014	EXISTING	TO USE RADAR	2013	NOTES
1	B - Simpson to Cedar	7/29/2014	B - 7th to Wabash	North South	33 31.8	33.0 34.3	30.3 31.5	30 30	25 25	7	1 1
2	B - Sonoma to Del Norte	7/31/2014	B - Wabash to Buhne	North South	31 30.2	33.4 32.5	31.3 32.2	30 30	25 25	7	1, 9 1, 9
3	B - Dollison to Long	7/31/2014	B - Buhne to Harris	North South	34.9 33	33.4 33.8	32.4 33.3	30 30	30 30	1	1 1
4	Buhne - Pine to Summer	8/20/2013	Buhne-Fairfield to E	East West	34.2 33	33.7 33.2	32.2 30.7	30 30	25 25	9	1 1
5	Buhne - F to G	10/7/2014	Buhne - E to J	East West	31.6 32	32.4 31.7	31.0 29.8	30 30	25 25	14	1 1
6	Buhne - N to O	8/15/2013	Buhne - J to Harrison	East West	33.8 35	36.6 35.6	34.8 35.3	30 30	30 30	8	1 1
7	California - Clark to Grant	8/13/2013	California - 7th to Wabash	North South	31.2 31	32.2 32.3	30.8 30.6	30 30	25 25	11	1 1
8	California - Trinity to Hawthorne	8/15/2013	California - Wabash to Buhne	North South	30.9 31.9	30.4 31.3	31.8 31.3	30 30	25 25	4	1 1
9	California - Long to Dollison	8/11/14	California - Buhne to Harris	North South	34.2 32.9	33.6 32.6	31.5 30.5	30 30	25 25	3	1 1
10	Campton - Fern to Oak	9/12/2013	Campton - Oak to S. City Limits	North South	41.2 41.7	40.0 37.6	36.5 36.8	40 40	35 35	4	2, 6 2, 6
11	Central - Pearl to Harris	8/11/2014	Central - Harris to South Ave.	North South	33.1 33.2	34.0 34.6	33.8 32.4	30 30	30 30	3	1, 9 1, 9
12	Dolbeer - Bainbridge to Hemlock	9/10/2013	Dolbeer - Harris to Hemlock	North South	34.3 33	35.0 34.0	32.0 30.0	30 30	25 25	3	1, 9 1, 9
13	E - 8th to 9th	8/7/2013	E - 7th to 14th	North South	31.5 31.5	31.5 31.4	30.7 31.5	30 30	25 25	6	1 1
14	E - Watson to 15th	8/7/2013	E - 14th to Buhne	North South	32 33	33.3 34.1	33.2 33.4	30 30	30 30	8	1, 9 1, 9
15*	E - Trinity to Huntoon	8/7/2013	E - Buhne to Harris	North South	31 30.2	30.6 32.3	32.6 31.4	30 30	25** 25**	4	1, 9 1, 9
16	E - Harris to Hodgson	8/7/2013	E - Harris to Orchard	North South	34.9 34	34.9 33.8	34.8 34.4	30 30	30 30	3	1, 9 1, 9
17	E - Willow to Orchard	8/7/2013	E - Orchard to S. City Limits	North South	34.8 34.5	36.2 35.3	33.8 36.0	30 30	30 30	0	1 1
18	F - Manzanita to Hodgson	9/5/2013	F - Harris to Orchard	North South	35.8 36	35.2 36.0	34.0 35.0	30 30	30 30	7	1 1

*Total Collisions for 2013 including intersections and mid-block collisions
** Only the portion of “E” Street from Henderson to Harris will be signed at 25mph

NO.	LOCATION OF SURVEY	SURVEY DATE	BOUNDARIES	DIRECTION	85TH % SPEED			SPEED LIMIT		Coll.*	NOTES
					2004	2009	2014	EXISTING	TO USE RADAR	2013	
19	F - Willow to Madrone	9/5/2013	F - Orchard to South City Limits	North South	36.1 35.5	36.9 36.8	34.3 33.8	30 30	30 30	0	1 1
20	Fairfield - Buhne to Prospect	9/4/2013	Fairfield - Wabash to Buhne	North South	33.7 33	34.0 33.0	33.6 32.9	30 30	30 30	7	1, 9 1, 9
21	Fairfield - Henderson to Creighton	8/29/2013	Fairfield - Buhne to Harris	North South	33.7 34.2	34.5 35.3	32.6 33.0	30 30	30 30	2	1 1
22	Fairway - Ridgecrest to Lundblade	9/4/2013	Fairway - F to Lundblade	North South	38.9 40	39.6 43.0	39.3 40.7	30 30	35 35	4	2 2
23	Fairway - Lundblade to City Limits	10/8/2014	Fairway - Lundblade to City Limits	North South	38.4 38	37.8 39.0	34.6 35.7	30 30	35 35	4	2 2
24	14th - Summer to Pine	7/30/2013	14th - Broadway to California	East West	29.2 30.2	30.0 29.7	26.7 27.8	30 30	25 25	7	1, 2 1, 2
25	14th - F to G	7/30/2013	14th - California to J	East West	31 31.7	32.9 30.6	28.8 30.2	30 30	25 25	15	1 1
26	14th - K to L	7/302013	14th - J to M	East West	34.4 34	34.7 35.0	34.0 34.4	30 30	30 30	15	1 1
27	14th - R to S	7/30/2013	14th - M to West	East West	35.6 34.2	36.0 34.2	33.7 34.3	30 30	30 30	1	1, 9 1, 9
28	Glen - Thomas to McDonald	8/14/2014	Glen - Harris to Gibson	North South	36.7 36.4	36.5 35.8	36.0 33.0	30 30	30 30	1	1 1
29	Glen - Highland to McCullens	10/8/2014	Glen - Gibson to Allard	North South	30.7 30.4	32.6 31.6	32.0 31.0	30 30	25 25	2	1 1
30	H - 8th to 9th	7/2/2013	H - 7th to 14th	South	36.1	36.9	34.7	35	30	6	1, 9
31	H - 16th to 17th	7/2/2013	H - 14th to Buhne	South	36.7	38.8	37.2	35	30	13	1
32	H - Buhne to Carson	7/2/2013	H - Buhne to Harris	South	36.3	38.2	35.3	35	30	13	1
33	H - Manzanita to Hodgson	9/5/2013	H - Harris to Manzanita	North South	37.5 38.2	38.6 38.8	37.0 35.8	35 35	30 30	6	1 1
34	H - Willow to Madrone	9/5/2013	H - Manzanita to Oak	North South	39.3 36.9	39.9 38.4	41.0 38.7	35 35	35 35	0	1 1
35	Harris - Prospect to Spring	8/15/2013	Harris - Broadway to California	East	33.2	35.6	34.8	30	30	10	1
36	Harris - A to B	7/2/2013	Harris - California to I	East	34.2	36.8	36.2	30	30	17	1 1
37	Harris - J to K	6/16/2013	Harris - I to R	East West	32.7 33.8	33.2 32.2	34.2 34.1	30 30	30 30	12	1 1
38	Harris – U to V	2/4/2013	Harris- R to Harrison	East West	31.7 32.7	34.9 35.0	34.3 36.4	30 30	30 30	10	1 1

*Total Collisions for 2013 including intersections and mid-block collisions

					85TH % SPEED			SPEED LIMIT		Coll.*	
NO.	LOCATION OF SURVEY	SURVEY DATE	BOUNDARIES	DIRECTION	2004	2009	2014	EXISTING	TO USE RADAR	2013	NOTES
39	Harrison - 17th to 18th	7/17/2013	Harrison - Myrtle to Lucas	North South	36.7 37.6	34.4 36.6	35.3 35.8	30 30	30 30	2	1,5 1,5
40	Harrison - Christenson to Roane	7/17/2013	Harrison Lucas to Erie	North South	31 33	31.2 29.3	28.3 29.0	30 30	25 25	4	1,5, 9 1,5, 9
41	Harrison - Erie to Russ	7/17/2013	Harrison - Erie to Harris	North South	32 31	34.0 33.9	31.1 33.5	30 30	25 25	2	1,5, 8 1,5, 8
42	Harrison – Chester to Cherry Ct	11/5/2014	Harrison - Harris to Manzanita	North South			34.6 33.5	25 25	30 30	1	1 1
43	Henderson - Spring to Central	7/17/2013	Henderson-Broadway to California	West	35.1	37.0	37.2	30	30	17	1,2
44	Henderson - William to Lowell	7/17/2013	Henderson - California to I Street	West	32.6	33.7	33.6	30	30	18	1,2, 9
45	Henderson - J to K	8/5/2014	Henderson – I to M	East West	33 33.6	33.5 33.9	32.6 33.7	30 30	30 30	4	1, 9 1, 9
46	Henderson - Q to R	7/23/2013	Henderson - M to S	East West	34.5 33.9	36.1 35	34.3 33.4	30 30	30 30	0	1 1
47	Hodgson - M to N	7/23/2013	Hodgson - F to N	East West	33.8 34.3	33.9 33.3	32.5 35.8	30 30	30 30	6	1 1
48	Hodgson - U to V	7/29/2014	Hodgson - N to W	East West	35 33.5	35.5 32.8	33.9 33.6	30 30	30 30	4	1 1
49	I - 8th to 9th	6/27/2013	I - 7th to 14th	North 1-W	34.8	36.6	34.6	35	30	11	1
50	I - 16th to 17th	6/27/2013	I - 14th to Buhne	North 1-W	37	40.6	37.0	35	30	14	1, 2
51	I - Buhne to Carson	6/27/2013	I - Buhne to Harris	North 1-W	38.1	37.4	35.0	35	30	12	1
52	J - 8th to 9th	9/10/13	J - 7th to 14th	North South	34.3 33.9	33.9 34.0	34.1 33.3	30 30	30 30	9	1 1
53	J - 16th to 17th	9/10/2013	J - 14th to Buhne	North South	33.6 33.5	35.0 34.9	34.0 32.9	30 30	30 30	8	1 1
54	J - Buhne to Carson	8/5/2014	J - Buhne to Harris	North South	34.7 33.2	35.5 35.5	34.4 35.3	30 30	30 30	6	1 1
55	M - 10th to 11th	8/13/2014	M - 7th to 14th	North South	31 30.6	33.3 32.7	29.5 28.3	30 30	25 25	2	1 1
56	McCullens - Rudy to Iowa	9/5/2013	McCullens - Broadway to Glen	East West	33 33.8	34.6 37.5	32.6 35.3	30 30	30 30	3	1 1
57	McFarlan - 16th to 17th	10/9/2014	McFarlan - Myrtle to Hillside	North South		35.4 33.5	33.0 32.4	25 25	30 30	2	
58	Myrtle - 7th to 8th	8/29/2013	Myrtle - 5th to West	East West	38.5 37.7	38.6 37.0	33.0 32.8	35 35	30 30	4	1, 9 1, 9

*Total Collisions for 2013 including intersections and mid-block collisions

NO.	LOCATION OF SURVEY	SURVEY DATE	BOUNDARIES	DIRECTION	85TH % SPEED			SPEED LIMIT		Coll.*	NOTES
					2004	2009	2014	EXISTING	TO USE RADAR	2014	
59	Myrtle - Sunny to McFarlan	8/29/2013	Myrtle - West to Harrison	East West	42 39	38.9 38.0	37.0 38.9	35 35	35 35	15	1 1
60	S - Huntoon to Trinity	7/23/2013	S - County Ln to Buhne	North South	33 33	36.9 34.8	35.3 33.3	30 30	30 30	2	1, 2 1, 2
61	S - Papke to Hayes	7/23/2013	S - Buhne to Harris	North South	34.6 33.9	34.3 35.3	33.5 33.8	30 30	30 30	4	1 1
62	7th - B to C	8/29/2013	7th - Broadway to J	East 1-W	29.7	33.5	31.8	30	25	29	1,2
63	7th - J to K	8/29/2013	7th - J to O	East 1-W	33.7	33.4	32.7	30	30	5	1,2, 9
64	7th - P to Myrtle	8/29/2013	7th O to Myrtle	East 1-W	36.6	37.0	35.9	30	30	2	1,2
65	6th - B to C	8/29/2013	6th - Broadway to J	West 1-W	33.2	33.0	29.4	25	25	19	1,2, 9
66	6th - J to K	8/29/2013	6th - J to O	West 1-W	30.8	32.0	28.8	30	25	2	1, 2, 9
67	6th - O to P	8/20/2013	6th - O to Myrtle	West 1-W	33.3	33.8	33.4	30	30	1	1,2, 9
68	Union - Carson to Creighton	8/11/2014	Union - Wabash to Harris	North South	32.4 32.5	33.4 33.3	30.9 30.4	30 30	25 25	7	1, 2 1, 2
69	Union - Highland to Andrew	9/12/2013	Union - Harris to South City Limits	North South	32 35	34.5 35.1	31.9 34.0	30 30	25 25	6	1 1, 3, 8
70	Wabash - California to Pine	9/4/2013	Wabash - Broadway to H	East West	32.7 33.2	34.4 33.4	31.8 32.3	30 30	30 30	20	1, 9 1, 9
71	West - 6th to Tydd	8/20/2013	West - 5th to Myrtle	North South	31.8 32	31.0 33.2	32.5 32.9	25 25	25 25	6	7 7
72	West - 13th to 14th	8/20/2013	West - Myrtle to 14th	North South	35.3 36	34.3 32.5	34.8 34.7	30 30	30 30	5	1 1
73	West - 17th to 18th	8/20/2013	West - 14th to County Ln	North South	34.6 35	38.2 37.4	36.4 35.9	30 30	30 30	0	1,3 1

*Total Collisions for 2013 including intersections and mid-block collisions

The average 85th percentile speeds compare as follows:

Year of Study	**2004**	2009	**2014**
Average 85th % Speed	34.07	34.70	33.42

CITY OF EUREKA
RADAR SPEED HISTORY

INJURY COLLISION HISTORY

YEAR	NUMBER OF INJURY COLLISIONS	PERCENT CHANGE
1986	282	2.5%
1987	283	0.4%
1988	268	-5.5%
1989	308	14.9%
1990	304	-1.3%
1991	289	-4.9%
1992	313	8.3%
1993	321	2.6%
1994	314	-2.2%
1995	261	-16.9%
1996	280	7.3%
1997	282	0.7%
1998	295	4.6%
1999	261	-11.0%
2000	276	5.5%
2001	301	9.1%
2002	294	-2.3%
2003	387	16.9%
2004	340	-12.1%
2005	294	-13.8%
2006	289	-1.4%
2007	257	-11.1%
2008	223	-13.6%
2009	279	+25.1%
2010	259	-7.5%
2011	250	-3.1%
2012	287	+4.0%
2013	256	-10.8%

SECTION IV

SPEED CONTROL EFFORTS BY EUREKA POLICE DEPARTMENT

The Eureka Police Department (EPD) has employed the use of radar for over 30 years. More recently EPD has employed the use of both radar and LIDAR to effectively conduct speed enforcement in an effort to reduce the number of speed related collisions in Eureka. The use of radar and LIDAR is recognized as an effective enforcement tool and is used by the majority of law enforcement agencies in California, including the California Highway Patrol (CHP).

If trained and used correctly, Officers who have issued speeding citations while using radar or LIDAR often times are less contested in court, when compared to visual estimations or vehicle pacing. Methods of enforcement include marked patrol cars and marked police motorcycles.

Throughout the last several years the Office of Traffic Safety (OTS) had provided the City of Eureka with grant funding which has a goal of collision reduction, by means of various enforcement measures, one of which is speed enforcement. Portions of the funding from OTS are dedicated to overtime to conduct speed enforcement. Additional funding from OTS is / was dedicated to purchasing radar and LIDAR units used for speed enforcement. In 2014 OTS provided funding to purchase two LIDAR units. LIDAR used light emitting technology which allows an officer to pick out a specific vehicle (even within a pack of vehicles) and obtain its speed, and distance from the unit.

OTS has also provided funding for 8 radar feedback signs. These signs have been placed at various locations within the City of Eureka based on complaints, and speed related collisions. One speed sign is attached to the rear of a public works vehicle and can be moved throughout the city on a daily basis as staffing allows. These signs provide motorists with feedback as to their speed and often change the behavior of people who and just not paying attention to their speed.

As of November 1st 2014, EPD has two officers assigned to the Traffic Section. Their responsibilities include, but are not limited to, traffic enforcement and collision investigation. Due to staffing levels, and calls for service within Eureka, Traffic Officers are often called to assist patrol or handle patrol calls when the patrol officers are busy. As time, workloads and calls for services permit, patrol officers make efforts to conduct traffic enforcement.

In 2013 EPD took 109 traffic collisions where speed was a contributing factor to the cause of the collision. 45 people were injured in these collisions. These injuries ranged from minor complaints of pain to significant injuries requiring immediate medical aid.

APPENDIX "A"

DEFINITIONS

Speed Signs for Business and Residence Districts

CVC 21357. Speed restriction signs may, but need not, be erected upon any highway other than a state highway at the entrance thereof into a business or residence district unless required in this chapter.

Speed Signs for Special Areas

CVC 21359. Whenever the Department of Transportation or a local authority as authorized by this code determines and declares a speed limit different from the limit otherwise applicable under Sections 22349 and 22352, appropriate speed restriction signs shall be erected and maintained at the outside entrance of the highway or portion thereof upon which the special speed limit is applicable. The special speed limit is not effective until appropriate signs have been erected.

Maximum Speed Limit

CVC 22349. (a) Except as provided in Section 22356, no person may drive a vehicle upon a highway at a speed greater than 65 miles per hour.

(b) Notwithstanding any other provision of law, no person may drive a vehicle upon a two-lane, undivided highway at a speed greater than 55 miles per hour unless that highway, or portion thereof, has been posted for a higher speed by the Department of Transportation or appropriate local agency upon the basis of an engineering and traffic survey. For purposes of this subdivision, the following apply:

(1) A two-lane, undivided highway is a highway with not more than one through lane of travel in each direction.

(2) Passing lanes may not be considered when determining the number of through lanes.

(c) It is the intent of the Legislature that there be reasonable signing on affected two-lane, undivided highways described in subdivision (b) in continuing the 55 miles-per-hour speed limit, including placing signs at county boundaries to the extent possible, and at other appropriate locations.

Basic Speed Law

CVC 22350. No person shall drive a vehicle upon a highway at a speed greater than is reasonable or prudent having due regard for weather, visibility, the traffic on, and the surface and width of, the highway, and in no event at a speed which endangers the safety of persons or property.

Speed Law Violations

CVC 22351. (a) The speed of any vehicle upon a highway not in excess of the limits specified in Section 22352 or established as authorized in this code is lawful unless

clearly proved to be in violation of the basic speed law.

(b) The speed of any vehicle upon a highway in excess of the prima facie speed limits in Section 22352 or established as authorized in this code is prima facie unlawful unless the defendant establishes by competent evidence that the speed in excess of said limits did not constitute a violation of the basic speed law at the time, place and under the conditions then existing.

Prima Facie Speed Limits

CVC 22352. (a) The prima facie limits are as follows and shall be applicable unless changed as authorized in this code and, if so changed, only when signs have been erected giving notice thereof:

(1) Fifteen miles per hour:

(A) When traversing a railway grade crossing, if during the last 100 feet of the approach to the crossing the driver does not have a clear and unobstructed view of the crossing and of any traffic on the railway for a distance of 400 feet in both directions along the railway. This subdivision does not apply in the case of any railway grade crossing where a human flagman is on duty or a clearly visible electrical or mechanical railway crossing signal device is installed but does not then indicate the immediate approach of a railway train or car.

(B) When traversing any intersection of highways if during the last 100 feet of the driver's approach to the intersection the driver does not have a clear and unobstructed view of the intersection and of any traffic upon all of the highways entering the intersection for a distance of 100 feet along all those highways, except at an intersection protected by stop signs or yield right-of-way signs or controlled by official traffic control signals.

(C) On any alley.

(2) Twenty-five miles per hour:
(A) On any highway other than a state highway, in any business or residence district unless a different speed is determined by local authority under procedures set forth in this code.

(B) When approaching or passing a school building or the grounds thereof, contiguous to a highway and posted with a standard "SCHOOL" warning sign, while children are going to or leaving the school either during school hours or during the noon recess period. The prima facie limit shall also apply when approaching or passing any school grounds which are not separated from the highway by a fence, gate, or other physical barrier while the grounds are in use by children and the highway is posted with a standard "SCHOOL" warning sign. For purposes of this subparagraph, standard "SCHOOL" warning signs may be placed at any distance up to 500 feet away from school grounds.

(C) When passing a senior center or other facility primarily used by senior citizens, contiguous to a street other than a state highway and posted with a standard "SENIOR" warning sign. A local authority is not required to erect any sign pursuant to this

paragraph until donations from private sources covering those costs are received and the local agency makes a determination that the proposed signing should be implemented. A local authority may, however, utilize any other funds available to it to pay for the erection of those signs.

(b) This section shall become operative on March 1, 2001.

Increase of Local Speed Limits to 65 Miles Per Hour

CVC 22357. (a) Whenever a local authority determines upon the basis of an engineering and traffic survey that a speed greater than 25 miles per hour would facilitate the orderly movement of vehicular traffic and would be reasonable and safe upon any street other than a state highway otherwise subject to a prima facie limit of 25 miles per hour, the local authority may by ordinance determine and declare a prima facie speed limit of 30, 35, 40, 45, 50, 55, or 60 miles per hour or a maximum speed limit of 65 miles per hour, whichever is found most appropriate to facilitate the orderly movement of traffic and is reasonable and safe. The declared prima facie or maximum speed limit shall be effective when appropriate signs giving notice thereof are erected upon the street and shall not thereafter be revised except upon the basis of an engineering and traffic survey. This section does not apply to any 25-mile-per-hour prima facie limit which is applicable when passing a school building or the grounds thereof or when passing a senior center or other facility primarily used by senior citizens.

(b) This section shall become operative on the date specified in subdivision (c) of Section 22366.

Decrease Near Children's Playgrounds

CVC 22357.1. Notwithstanding Section 22357, a local authority may, by ordinance or resolution, set a prima facie speed limit of 25 miles per hour on any street, other than a state highway, adjacent to any children's playground in a public park but only during particular hours or days when children are expected to use the facilities. The 25 miles per hour speed limit shall be effective when signs giving notice of the speed limit are posted.

Decrease of Local Speed Limits

CVC 22358. (a) Whenever a local authority determines upon the basis of an engineering and traffic survey that the limit of 65 miles per hour is more than is reasonable or safe upon any portion of any street other than a state highway where the limit of 65 miles per hour is applicable, the local authority may by ordinance determine and declare a prima facie speed limit of 60, 55, 50, 45, 40, 35, 30, or 25 miles per hour, whichever is found most appropriate to facilitate the orderly movement of traffic and is reasonable and safe, which declared prima facie limit shall be effective when appropriate signs giving notice thereof are erected upon the street.

(b) This section shall become operative on the date specified in subdivision (c) of Section 22366.

Decrease on Narrow Street

CVC 22358.3. Whenever a local authority determines upon the basis of an engineering and traffic survey that the prima facie speed limit of 25 miles per hour in a business or residence district or in a public park on any street having a roadway not exceeding 25 feet in width, other than a state highway, is more than is reasonable or safe, the local authority may, by ordinance or resolution determine and declare a prima facie speed limit of 20 or 15 miles per hour, whichever is found most appropriate and is reasonable and safe. The declared prima facie limit shall be effective when appropriate signs giving notice thereof are erected upon the street.

Decrease of Local Limits Near Schools or Senior Centers

CVC 22358.4 ((a) (1) Whenever a local authority determines upon the basis of an engineering and traffic survey that the prima facie speed limit of 25 miles per hour established by paragraph (2) of subdivision (a) of Section 22352 is more than is reasonable or safe, the local authority may, by ordinance or resolution, determine and declare a prima facie speed limit of 20 or 15 miles per hour, whichever is justified as the appropriate speed limit by that survey.

(2) An ordinance or resolution adopted under paragraph (1) shall not be effective until appropriate signs giving notice of the speed limit are erected upon the highway and, in the case of a state highway, until the ordinance is approved by the Department of Transportation and the appropriate signs are erected upon the highway.

(b) (1) Notwithstanding subdivision (a) or any other provision of law, a local authority may, by ordinance or resolution, determine and declare prima facie speed limits as follows:

(A) A 15 miles per hour prima facie limit in a residence district, on a highway with a posted speed limit of 30 miles per hour or slower, when approaching, at a distance of less than 500 feet from, or passing, a school building or the grounds of a school building, contiguous to a highway and posted with a school warning sign that indicates a speed limit of 15 miles per hour, while children are going to or leaving the school, either during school hours or during the noon recess period. The prima facie limit shall also apply when approaching, at a distance of less than 500 feet from, or passing, school grounds that are not separated from the highway by a fence, gate, or other physical barrier while the grounds are in use by children and the highway is posted with a school warning sign that indicates a speed limit of 15 miles per hour.

(B) A 25 miles per hour prima facie limit in a residence district, on a highway with a posted speed limit of 30 miles per hour or slower, when approaching, at a distance of 500 to 1,000 feet from, a school building or the grounds thereof, contiguous to a highway and posted with a school warning sign that indicates a speed limit of 25 miles per hour, while children are going to or leaving the school, either during school hours or during the noon recess period. The prima facie limit shall also apply when approaching, at a distance of 500 to 1,000 feet from, school grounds that are not separated from the highway by a fence, gate, or other physical barrier while the grounds are in use by children and the highway is posted with a school warning sign that indicates a speed limit of 25 miles per hour.

(2) The prima facie limits established under paragraph (1) apply only to highways that meet all of the following conditions:

(A) A maximum of two traffic lanes.

(B) A maximum posted 30 miles per hour prima facie speed limit immediately prior to and after the school zone.

(3) The prima facie limits established under paragraph (1) apply to all lanes of an affected highway, in both directions of travel.

(4) When determining the need to lower the prima facie speed limit, the local authority shall take the provisions of Section 627 into consideration.

(5) (A) An ordinance or resolution adopted under paragraph (1) shall not be effective until appropriate signs giving notice of the speed limit are erected upon the highway and, in the case of a state highway, until the ordinance is approved by the Department of Transportation and the appropriate signs are erected upon the highway.

(B) For purposes of subparagraph (A) of paragraph (1), school warning signs indicating a speed limit of 15 miles per hour may be placed at a distance up to 500 feet away from school grounds.

(C) For purposes of subparagraph (B) of paragraph (1), school warning signs indicating a speed limit of 25 miles per hour may be placed at any distance between 500 and 1,000 feet away from the school grounds.

(D) A local authority shall reimburse the Department of Transportation for all costs incurred by the department under this subdivision.

Downward Speed Zoning

CVC 22358.5. It is the intent of the Legislature that physical conditions such as width, curvature, grade and surface conditions, or any other condition readily apparent to a driver, in the absence of other factors, would not require special downward speed zoning, as the basic rule of Section 22350 is sufficient regulation as to such conditions. Added Ch. 11, Stats. 1959. Effective September 18, 1959.

Boundary Line Streets

CVC 22359. With respect to boundary line streets and highways where portions thereof are within different jurisdictions, no ordinance adopted under Sections 22357 and 22358 shall be effective as to any such portion until all authorities having jurisdiction of the portions of the street concerned have approved the same. This section shall not apply in the case of boundary line streets consisting of separate roadways within different jurisdictions.

Maximum Speed Limit on Local Highway Linking Districts

CVC 22360. (a) Whenever a local authority determines upon the basis of an engineering and traffic survey that the limit of 65 miles per hour is more than is reasonable or safe upon any portion of a highway other than a state highway for a distance of not exceeding 2,000 feet in length between districts, either business or

residence, the local authority may determine and declare a reasonable and safe prima facie limit thereon lower than 65 miles per hour, but not less than 25 miles per hour, which declared prima facie speed limit shall be effective when appropriate signs giving notice thereof are erected upon the street or highway.

(b) This section shall become operative on the date specified in subdivision (c) of Section 22366.

Decreasing Speed Limit on Grades

CVC 22413. Whenever a local authority determines upon the basis of an engineering and traffic survey that the prima facie limit of 25 miles per hour is more than is reasonable and safe on any portion of a street having a grade in excess of 10 percent, the local authority may by ordinance determine and declare a maximum limit of 20 or 15 miles per hour, whichever is found most appropriate and is reasonable and safe. The declared maximum speed shall be effective when appropriate signs giving notice thereof are erected upon the street.

Speed Trap Prohibition

CVC 40801. No peace officer or other person shall use a speed trap in arresting, or participating or assisting in the arrest of, any person for any alleged violation of this code nor shall any speed trap be used in securing evidence as to the speed of any vehicle for the purpose of an arrest or prosecution under this code.

Speed Traps

CVC 40802. (a) A "speed trap" is either of the following:

(1) A particular section of a highway measured as to distance and with boundaries marked, designated, or otherwise determined in order that the speed of a vehicle may be calculated by securing the time it takes the vehicle to travel the known distance.

(2) A particular section of a highway with a prima facie speed limit that is provided by this code or by local ordinance under subparagraph (A) of paragraph (2) of subdivision (a) of Section 22352, or established under Section 22354, 22357, 22358, or 22358.3, if that prima facie speed limit is not justified by an engineering and traffic survey conducted within five years prior to the date of the alleged violation, and enforcement of the speed limit involves the use of radar or any other electronic device that measures the speed of moving objects. This paragraph does not apply to a local street, road, or school zone.

(b) (1) For purposes of this section, a local street or road is one that is functionally classified as “local” on the “California Road System Maps,” that are approved by the Federal Highway Administration and maintained by the Department of Transportation. When a street or road does not appear on the “California Road System Maps,” it may be defined as a “local street or road” if it primarily provides access to abutting residential property and meets the following three conditions:

(A) Roadway width of not more than 40 feet.

(B) Not more than one-half of a mile of uninterrupted length. Interruptions shall include official traffic control signals as defined in Section 445.

(C) Not more than one traffic lane in each direction.

(2) For purposes of this section "school zone" means that area approaching or passing a school building or the grounds thereof that is contiguous to a highway and on which is posted a standard "SCHOOL" warning sign, while children are going to or leaving the school either during school hours or during the noon recess period. "School zone" also includes the area approaching or passing any school grounds that are not separated from the highway by a fence, gate, or other physical barrier while the grounds are in use by children if that highway is posted with a standard "SCHOOL" warning sign.

(c) (1) When all of the following criteria are met, paragraph (2) of this subdivision shall be applicable and subdivision (a) shall not be applicable:

(A) When radar is used, the arresting officer has successfully completed a radar operator course of not less than 24 hours on the use of police traffic radar, and the course was approved and certified by the Commission on Peace Officer Standards and Training.

(B) When laser or any other electronic device is used to measure the speed of moving objects, the arresting officer has successfully completed the training required in subparagraph (A) and an additional training course of not less than two hours approved and certified by the Commission on Peace Officer Standards and Training.

(C) (i) The prosecution proved that the arresting officer complied with subparagraphs (A) and (B) and that an engineering and traffic survey has been conducted in accordance with subparagraph (B) of paragraph (2). The prosecution proved that, prior to the officer issuing the notice to appear, the arresting officer established that the radar, laser, or other electronic device conformed to the requirements of subparagraph (D).

(ii) The prosecution proved the speed of the accused was unsafe for the conditions present at the time of alleged violation unless the citation was for a violation of Section 22349, 22356, or 22406.

(D) The radar, laser, or other electronic device used to measure the speed of the accused meets or exceeds the minimal operational standards of the National Traffic Highway Safety Administration, and has been calibrated within the three years prior to the date of the alleged violation by an independent certified laser or radar repair and testing or calibration facility.

(2) A "speed trap" is either of the following:

(A) A particular section of a highway measured as to distance and with boundaries marked, designated, or otherwise determined in order that the speed of a vehicle may be calculated by securing the time it takes the vehicle to travel the known distance.

(B) (i) A particular section of a highway or state highway with a prima facie speed limit that is provided by this code or by local ordinance under subparagraph (A) of paragraph (2) of subdivision (a) of Section 22352, or established under Section 22354, 22357, 22358, or 22358.3, if that prima facie speed limit is not justified by an engineering and traffic survey conducted within one of the following time periods, prior to the date of the alleged violation, and enforcement of the speed limit involves the use of radar or any other electronic device that measures the speed of moving objects:

(I) Except as specified in subclause (II), seven years.

(II) If an engineering and traffic survey was conducted more than seven years prior to the date of the alleged violation, and a registered engineer evaluates the section of the highway and determines that no significant changes in roadway or traffic conditions have occurred, including, but not limited to, changes in adjoining property or land use, roadway width, or traffic volume, 10 years.

(ii) This subparagraph does not apply to a local street, road, or school zone.

CRITICAL (85th PERCENTILE) SPEED

Speed limit determinations rely on the premise that a reasonable speed limit is one that conforms to the actual behavior of the majority of drivers; one will be able to select a speed limit that is both reasonable and effective by measuring driver's speeds. The 85th percentile speed is the speed at or below which 85% of the traffic is moving. The speed chosen for speed zoning should be in 5 mile per hour increments and should normally be selected at a value nearest the 85th percentile speed.

10 MPH PACE

The pace is the 10 mph range of speeds containing the largest number of observations. The higher the percentage within the pace, the less the speed differential is. A high percentage of vehicles within the 10 mph pace indicates a desirable traffic flow.

APPENDIX "B"

METHOD OF STUDY AND EQUIPMENT USED

A. Method of Study

The method of study used by the City of Eureka in compiling this report was in conformance with the applicable sections of the California Manual on Uniform Traffic Control Devices (MUTCD) Section 2B.13, as follows:

California MUTCD 2012 Edition
(FHWA's MUTCD 2009 Edition, as amended for use in California)

Section 2B.13 Speed Limit Sign (R2-1)

Support:

00 The setting of speed limits can be controversial and requires a rational and defensible determination to maintain public confidence. Speed limits are normally set near the 85th-percentile speed that statistically represents one standard deviation above the average speed and establishes the upper limit of what is considered reasonable and prudent. As with most laws, speed limits need to depend on the voluntary compliance of the greater majority of motorists. Speed limits cannot be set arbitrarily low, as this would create violators of the majority of drivers and would not command the respect of the public.

Standard:

01 Speed zones (other than statutory speed limits) shall only be established on the basis of an engineering and traffic survey (E&TS) study that has been performed in accordance with traffic engineering practices. The engineering study shall include an analysis of the current speed distribution of free-flowing vehicles.

02 The Speed Limit (R2-1) sign (see Figure 2B-3) shall display the limit established by law, ordinance, regulation, or as adopted by the authorized agency based on the engineering study. The speed limits displayed shall be in multiples of 5 mph.

Guidance:

10 States and local agencies should conduct engineering studies at least once every 5, 7 or 10 years, in compliance with CVC Section 40802 to reevaluate non-statutory speed limits on segments of their roadways that have undergone significant changes since the last review, such as the addition or elimination of parking or driveways, changes in the number of travel lanes, changes in the configuration of bicycle lanes, changes in traffic control signal coordination, or significant changes in traffic volumes.

12 When a speed limit within a speed zone is posted, it should be within 5 mph of the 85th-percentile speed of free-flowing traffic.

Standard:

12a When a speed limit is to be posted, it shall be established at the nearest 5 mph increment of the 85th-percentile speed of free-flowing traffic, except as shown in the two Options below.

Option:

1. The posted speed may be reduced by 5 mph from the nearest 5 mph increment of the 85th-percentile speed, in compliance with CVC Sections 627 and 22358.5. See Standard below for documentation requirements.
2. For cases in which the nearest 5 mph increment of the 85th-percentile speed would require a rounding up, then the speed limit may be rounded down to the nearest 5 mph increment below the 85th percentile speed, if no further reduction is used. Refer to CVC Section 21400(f).

Standard:

12b If the speed limit to be posted has had the 5 mph reduction applied, then an E&TS shall document in writing the conditions and justification for the lower speed limit and be approved by a registered Civil or Traffic Engineer. The reasons for the lower speed limit shall be in compliance with CVC Sections 627 and 22358.5.

Support:

12c The following examples are provided to explain the application of these speed limit criteria:

A. Using Option 1 above and first step is to round down: If the 85th percentile speed in a speed survey for a location was 37 mph, then the speed limit would be established at 35 mph since it is the closest 5 mph increment to the 37 mph speed. As indicated by the option, this 35 mph established speed limit could be reduced by 5 mph to 30 mph if the conditions and justification for using this lower speed limit are documented in the E&TS and approved by a registered Civil or Traffic Engineer.

B. Using Option 1 above and first step is to round up: If the 85th percentile speed in a speed survey for a location was 33 mph, then the speed limit would be established at 35 mph since it is the closest 5 mph increment to the 33 mph speed. As indicated by the option, this 35 mph speed limit could be reduced by 5 mph to 30 mph if the conditions and justification for using this lower speed limit are documented in the E&TS and approved by a registered Civil or Traffic Engineer.

C. Using Option 2 above and first step is to round up: If the 85th percentile speed in a speed survey for a location was 33 mph, instead of rounding up to 35mph, the speed limit can be established at 30mph, but no further reductions can be applied (which is allowed in the two examples above).

Standard:

12d Examples 1 and 2 for establishing posted speed limits shall apply to engineering and traffic surveys (E&TS) performed on or after July 1, 2009 in accordance with the Department's Traffic Operations Policy Directive Number 09-04 dated June 29, 2009.

Option:

12e After January 1, 2012, Example 3 may be used to establish speed limits. Refer to CVC 21400(f).

Support:

12f Any existing E&TS that was performed before July 1, 2009 in accordance with previous traffic control device standards is not required to comply with the new criteria until it is due for reevaluation per the 5, 7 or 10 year criteria.

13 Speed studies for signalized intersection approaches should be taken outside the influence area of the traffic control signal, which is generally considered to be approximately 1/2 mile, to avoid obtaining skewed results for the 85th-percentile speed.

Option:

16 Other factors that may be considered when establishing or reevaluating speed limits are the following:

A. Road characteristics, shoulder condition, grade, alignment, and sight distance;
B. The pace;
C. Roadside development and environment;
D. Parking practices and pedestrian activity; and
E. Reported crash experience for at least a 12-month period.

22 Speed limits in California are governed by the California Vehicle Code (CVC), Sections 22348 through 22413; also, pertinent sections are found in Sections 627 and 40802 and others referenced in this section. See Section 1A.11 for information regarding this publication.

<u>Engineering and Traffic Survey (E&TS)</u>

Support:

24 CVC Section 627 defines the term "Engineering and traffic survey" and lists its requirements.

Standard:

25 An engineering and traffic survey (E&TS) shall include, among other requirements deemed necessary by the department, consideration of all of the following:

A. Prevailing speeds as determined by traffic engineering measurements.

B. Collision records.
C. Highway, traffic, and roadside conditions not readily apparent to the driver.

Guidance:

26 The E&TS should contain sufficient information to document that the required three items of CVC Section 627 are provided and that other conditions not readily apparent to a driver are properly identified.

27 Prevailing speeds are determined by a speed zone survey. A speed zone survey should include:

A. The intent of the speed measurements is to determine the actual speed of unimpeded traffic. The speed of traffic should not be altered by concentrated law enforcement, or other means, just prior to, or while taking the speed measurements.

B. Only one person is required for the field work. Speeds should be read directly from a radar or other electronic speed measuring devices; or,

C. Devices, other than radar, capable of accurately distinguishing and measuring the unimpeded speed of free flowing vehicles may be used.

D. A location should be selected where prevailing speeds are representative of the entire speed zone section. If speeds vary on a given route, more than one speed zone section may be required, with separate measurements for each section. Locations for measurements should be chosen so as to minimize the effects of traffic signals or stop signs.

E. Speed measurements should be taken during off-peak hours between peak traffic periods on weekdays. If there is difficulty in obtaining the desired quantity, speed measurements may be taken during any period with free flowing traffic.

F. The weather should be fair (dry pavement) with no unusual conditions prevailing.

G. The surveyor and equipment should not affect the traffic speeds. For this reason, an unmarked car is recommended, and the radar speed meter located as inconspicuously as possible.

H. In order for the sample to be representative of the actual traffic flow, the minimum sample should be 100 vehicles in each survey. In no case should the sample contain less than 50 vehicles.

I. Short speed zones of less than 0.5 mile should be avoided, except in transition areas.

J. Speed zone changes should be coordinated with changes in roadway conditions or roadside development.

K. Speed zoning should be in 10 mph increments except in urban areas where 5 mph increments are preferable.

L. Speed zoning should be coordinated with adjacent jurisdictions.

Support:

28 Physical conditions such as width, curvature, grade and surface conditions, or any other condition readily apparent to the driver, in the absence of other factors, would not require special downward speed zoning. Refer to CVC 22358.5.

Option:

29 When qualifying an appropriate speed limit, local authorities may also consider all of the following findings:

A. Residential density, if any of the following conditions exist on the particular portion of highway and the property contiguous thereto, other than a business district:

1. Upon one side of the highway, within 0.25 mile, the contiguous property fronting thereon is occupied by 13 or more separate dwelling houses or business structures.

2. Upon both sides of the highway, collectively, within a distance of 0.25 mile the contiguous property fronting thereon is occupied by 16 or more separate dwelling houses or business structures.

3. The portion of highway is larger than 0.25 mile but has the ratio of separate dwelling houses or business structures to the length of the highway described in either subparagraph a or b.

B. Pedestrian and bicyclist safety.

30 The following two methods of conducting E&TS may be used to establish speed limits:

1. State Highways - The E&TS for State highways is made under the direction of the Department of Transportation's District Traffic Engineer. The data includes:

a. One copy of the Example of Speed Zone Survey Sheet (See Figure 2B-101(CA)) showing:

- A north arrow
- Engineer's station or post mileage
- Limits of the proposed zones
- Appropriate notations showing type of roadside development, such as "scattered business," "solid residential, "etc. Schools adjacent to the highway are shown, but other buildings need not be plotted unless they are a factor in the speed recommendation or the point of termination of a speed zone.

- Collision rates for the zones involved
- Average daily traffic volume
- Location of traffic signals, signs and markings
- If the highway is divided, the limits of zones for each direction of travel
- Plotted 85th percentile and pace speeds at location taken showing speed profile

b. A report to the District Director that includes:

- The reason for the initiation of speed zone survey.
- Recommendations and supporting reasons.
- The enforcement jurisdictions involved and the recommendations and opinions of those officials.
- The stationing or reference post in mileage at the beginning and ending of each proposed zone and any intermediate equations. Location ties must be given to readily identifiable physical features.

2. City and County Through Highways, Arterials, Collector Roads and Local Streets.

a. The short method of speed zoning is based on the premise that a reasonable speed limit is one that conforms to the actual behavior of the majority of motorists, and that by measuring motorists' speeds, one will be able to select a speed limit that is both reasonable and effective. Other factors that need to be considered include but are not limited to: the most recent two-year collision record, roadway design speed, safe stopping sight distance, superelevation, shoulder conditions, profile conditions, intersection spacing and offsets, commercial driveway characteristics, and pedestrian traffic in the roadway without sidewalks.

b. Determination of Existing Speed Limits - Figures 2B-103(CA) & 2B-104(CA) show examples of data sheets which may be used to record speed observations. Specific types of vehicles may be tallied by use of letter symbols in appropriate squares.

31 In most situations, the short form for local streets and roads will be adequate; however, the procedure used on State highways may be used at the option of the local agency.

Guidance:

32 The factors justifying a reduction below the 85th percentile speed for the posted speed limit are the same factors mentioned above. Whenever such factors are considered to establish the speed limit, they should be documented on the speed zone survey or the accompanying engineering report.

33 The establishment of a speed limit of more than 5 mph below the 85th percentile speed should be done with great care as studies have shown that establishing a speed

limit at less than the 85th percentile generally results in an increase in collision rates; in addition, this may make violators of a disproportionate number of the reasonable majority of drivers.

Support:

34 Generally, the most decisive evidence of conditions not readily apparent to the driver surface in collision histories.

35 Speed limits are established at or near the 85th percentile speed, which is defined as that speed at or below which 85th percent of the traffic is moving. The 85th percentile speed is often referred to as the critical speed. Pace speed is defined as the 10 mph increment of speed containing the largest number of vehicles (See Figure 2B-102(CA)). The lower limit of the pace is plotted on the Speed Zone Survey Sheets as an aid in determining the proper zone limits. Speed limits higher than the 85th percentile are not generally considered reasonable and prudent. Speed limits below the 85th percentile do not
ordinarily facilitate the orderly movement of traffic and require constant enforcement to maintain compliance. Speed limits established on the basis of the 85th percentile conform to the consensus of those who drive highways as to what speed is reasonable and prudent, and are not dependent on the judgment of one or a few individuals.

36 The majority of drivers comply with the basic speed law. Speed limits set at or near the 85th percentile speed provide law enforcement officers with a limit to cite drivers who will not conform to what the majority considers reasonable and prudent. Further studies show that establishing a speed limit at less than the 85th percentile (Critical Speed) generally results in an increase in collision rates.

Option:

37 When roadside development results in traffic conflicts and unusual conditions which are not readily apparent to drivers, as indicated in collision records, speed limits somewhat below the 85th percentile may be justified. Concurrence and support of enforcement officials are necessary for the successful operation of a restricted speed zone.

Guidance:

38 Speed zones of less than 0.5 mile and short transition zones should be avoided.

Basic Speed Law and Prima Facie Speed Limits – See CVC 22350 & 22352

Support:

81 The basic speed law states “No person shall drive a vehicle upon a highway at a speed greater than is reasonable or prudent having due regard for weather, visibility, the traffic on, and the surface and width of, the highway, and in no event at a speed which endangers the safety of persons or property.”

Standard:

82 Prima facie speed limits are specific limits and shall apply unless changed based upon an engineering and traffic survey (E&TS) and signs are posted that display the new speed limit.

Option:

83 Prima facie speed limits may be preempted by the basic speed law, when roadway, traffic or weather conditions warrant a lower speed.

Speed Traps

Support:

93 Refer to CVC 40802 for Speed Traps.

Standard:

94 A speed trap shall not apply to a local street, road, or school zone.

95 A section of highway shall be defined as a speed trap if the prima facie speed limit is not justified by an
engineering and traffic survey (E&TS) within five years, and the enforcement of the speed limit involves the use of radar or any other electronic device that measures the speed of moving objects.

96 This time provision shall be extended to seven years when using radar and all of the following criteria are met:

- The arresting officer has successfully completed a minimum of 24 hours of certified radar operator course training.
- The radar used to measure the speed meets or exceeds the minimal operational standards of the National Traffic Highway Safety Administration, and has been calibrated within three years of the alleged violation.

97 This time provision shall be extended to seven years when using laser or other electronic device (other than radar) and all of the following criteria are met:

- The arresting officer has successfully completed a minimum of 24 hours of certified radar operator course training.
- The arresting officer has successfully completed a minimum of 2 hours of additional approved certified training.
- The radar used to measure the speed meets or exceeds the minimal operational standards of the National Traffic Highway Safety Administration, and has been calibrated within three years of the alleged violation.

Option:

98 This time provision for an E&TS may be extended to ten years when all of the above conditions are met and no significant changes in roadway or traffic conditions have occurred, including changes in adjoining property or land use, roadway width, or traffic volume as determined by a registered engineer.

B. Equipment Used

The equipment used to sample vehicular speeds was the Eureka Engineering Department's radar unit described below:

Manufacturer – U.S. Radar, Inc.
Model - "Phantom"
Serial No. - 2634
Calibration Date - 05/21/12

The radar unit was handheld in an unmarked car.

C. Personnel

The radar speed survey, compilation of the data, and spot speed checks on gathered data were conducted by Rowan Beckensten, Chase Bloom, Scott Ellsmore and Dan Moody, of the City of Eureka Engineering Department.

Dan Moody, Engineering Traffic Operations, provided supervision and compiled the Radar Speed Survey following the directions contained within the 2012 Edition of the California Manual on Uniform Traffic Control Devices (MUTCD) Section 2B.13,

This project was conducted under the direction of Charles Roecklein, City Engineer for the City of Eureka. Input for the report was also received from the Public Works Department, the Department of Public Safety and the Transportation Safety Commission.

APPENDIX "C"

STREET CHARACTERISTICS

This section provides a description of some of the physical characteristics of each street segment monitored in this survey. All streets surveyed are defined at a level higher than local streets on the latest federal aid system map. These streets must be included in the survey as required under Section 20802 of the California Vehicle Code. Some of the items included are:

1. Street Width
2. Land Use
3. Parking
4. School Zones
5. Cross Streets
6. Driveway Access to Street
7. Congestion

B STREET

7th Street to Wabash

Narrow roadway - 36 feet in width. Primarily residential area with heavy on-street parking, numerous driveways and intersecting streets. The old Jefferson Elementary School site has been converted into a community center and playground with crosswalk at Clark Street.

Wabash Avenue to Buhne Street

Narrow 36 foot roadway. Primarily residential area with some commercial development near Wabash Avenue. Heavy on-street parking and numerous driveways and intersecting streets.

Buhne Street to Harris Street

Narrow roadway - 36 feet in width. Primarily residential area with an elementary school near Henderson Street. Heavy on-street parking and numerous driveways and intersecting streets.

BUHNE STREET

Fairfield Street to E Street

Narrow 36 foot roadway. Primarily residential area with heavy on-street parking, numerous driveways and intersecting streets.

E Street to J Street

Narrow 36-foot roadway. Primarily residential area with playground between H Street and I Street. Heavy on-street parking, numerous driveways and intersecting streets.

J Street to Harrison Avenue

40 foot roadway. Primarily residential area with medical offices near Harrison Avenue. Steep hills east of S Street. Heavy on-street parking, numerous driveways. Poor sight distance at Dean Street. Many turning movements.

CALIFORNIA STREET

7TH Street to Wabash

Narrow 36 foot roadway. Primarily residential area with spots of commercial development. Heavy on-street parking, numerous driveways and intersecting streets. Signed bike route.

Wabash Avenue to Buhne Street

Narrow 36 foot roadway. Primarily residential area with spots of commercial development. A senior center and Alzheimer's center are located south of Del Norte Street. Heavy on-street parking, numerous driveways and intersecting streets. Signed bike route.

Buhne Street to Harris Street

Narrow 36 foot roadway. Primarily residential area with large playground north of Henderson Street. Heavy on-street parking, numerous driveways and intersecting streets. Signed bike route.

CAMPTON ROAD

Oak Street to South City Limits

40 foot roadway. Primarily undeveloped land with some residential development. Elementary school and crosswalk near Oak Street. No sidewalks on east side of street, steep grade and sharp curves near city limits.

CENTRAL AVENUE

Harris Street to South Avenue

41.5 foot roadway. Residential area with an elementary school near South Avenue. Heavy on-street parking with numerous driveways.

DOLBEER STREET

Harris Street to Hemlock

Narrow 36 foot roadway. Residential area on east side with ball park and an elementary school on the west side. School crosswalk at Chester and Russell Streets. Heavy on-street parking and pedestrian movements when school is in session or adjacent fields are being used for sporting events

E STREET

7th Street to 14th Street

43 foot roadway. Mixture of residential, commercial and civic building. Very heavy on-street parking and turning movements. Numerous driveways and intersecting streets.

14th Street to Buhne Street

43 foot roadway. Primarily residential area with some commercial development. Playgrounds and tennis courts between 14th and 15th Streets. A private school located at Humboldt Street with school crosswalks at Humboldt Street and Trinity Street. Heavy on-street parking, numerous driveways and intersecting streets.

Buhne Street to Harris Street

43 foot roadway. Commercial development south of Dollison Street to Harris Street (Henderson Center). Residential area north of Dollison Street. Heavy on-street parking (especially in Henderson Center), numerous driveways, intersecting streets and heavy turning movements.

Harris Street to Orchard Street

41 foot roadway. Primarily residential area. Moderate on-street parking. Some areas without sidewalks. Sharp grade changes south of Hodgson Street.

Orchard Street to South City Limits

41 foot roadway. Primarily residential area. Moderate on-street parking. Some areas without sidewalks.

F STREET

Harris Street to Orchard Street

41 foot roadway. Primarily residential area with some commercial establishments. Heavy on-street parking, numerous driveways and intersecting streets.

Orchard Street to South City Limits

41 foot roadway. Residential area. Heavy on-street parking and numerous driveways.

FAIRFIELD STREET

Wabash Avenue to Buhne Street

Narrow 36 foot roadway. Primarily residential area with spots of commercial development near Wabash Avenue. Sharp direction change in street at Hawthorne. Heavy on-street parking and numerous driveways.

Buhne Street to Harris Street

Narrow 36 foot roadway. Residential area. Heavy on-street parking and numerous driveways.

FAIRWAY DRIVE

F Street to Lundblade Drive

Roadway width varies from 25 to 35 feet. Sidewalks are constructed only on portion north of golf course. Street traverses area of single family homes, undeveloped land and the golf course. Sharp curves and steep downgrade. Open culvert at bottom of hill. Some on-street parking and driveways.

Lundblade Drive to City Limits

Roadway width varies from 25 to 35 feet. Street traverses the golf course. Sharp curves and steep hill near city limits. No sidewalks. Mid-block crosswalk at golf course.

14TH STREET

Broadway to California Street

Narrow 36 foot roadway. Primarily residential area with some commercial development. Heavy on-street parking, numerous driveways and intersecting streets.

California to J Street

Narrow 36 foot roadway. Residential area. Heavy on-street parking, numerous driveways and intersecting streets. Sharp angle in street at G Street.

J Street to M Street

Narrow 36 foot roadway. Residential area. Heavy on-street parking, numerous driveways and intersecting streets.

M Street to West Avenue

40 foot roadway. Primarily residential area with some undeveloped land. Moderate on-street parking, numerous driveways and several intersecting streets. There is a large dip in the street between N Street and R Street.

GLEN STREET

Harris Street to Gibson Avenue

Narrow 36 foot roadway. Residential area with heavy on-street parking and numerous driveways. Playground near Gibson Avenue. Sharp angle in street at Gibson Avenue.

Gibson Avenue to Allard Avenue

Narrow 36 foot roadway. Residential area with heavy on-street parking and numerous driveways. There is a playground between Gibson Avenue and Highland Avenue. There is also a sharp angle in the street near the playground. Heavy pedestrian activity.

H STREET

7th Street to 14th Street

One way, 51 foot roadway. Primarily residential area with some commercial development near 7th Street. Heavy on-street parking, numerous driveways and intersecting streets.

14th Street to Buhne Street

One way, 51 foot roadway. Residential area with heavy on-street parking and numerous driveways and intersecting streets. School crosswalks at Huntoon, Trinity, Humboldt, Sonoma and Del Norte Streets.

Buhne Street to Harris Street

One way, 51 foot roadway. Primarily residential area with some commercial/office development near Harris Street. There is a playground adjacent to the street between Buhne and Carson Streets. There is a major County facility near Harris Street. Heavy on-street parking especially near the County facility, numerous driveways and intersecting streets.

Harris Street to Manzanita Avenue

51 foot roadway. Primarily a residential area with some office and medical facilities near Harris Street. On-street parking is heavy near the medical offices. There are numerous driveways and intersecting streets.

Manzanita Avenue to Oak Street

51 foot roadway. Residential area with an elementary school and crosswalk at Oak Street. Moderate on-street parking and numerous driveways. Sharp angle in street near Oak Street.

HARRIS STREET

Broadway to California Street

One way street with a 46 foot roadway width. Primarily a commercial area with a housing facility on the south side of the street opposite a mall on the north side. On-street parking is moderate (restricted adjacent to mall). There is an elementary school located east of Summer Street. There are numerous driveways and intersecting streets with very heavy turning movements, especially in and out of the mall. Heavy pedestrian activity. Signed 5' bike lane on right side of street.

California Street to I Street

One way street with a 44 foot roadway. Combination of commercial area (Henderson Center) and residential areas. Heavy on-street parking, numerous driveways and intersecting streets. Very heavy turning movements in the Henderson Center area. Signed 5' bike lane on the right side of the street. Signed bike lane on right side of treet.

I Street to R Street

44 foot roadway. Residential area with moderate on-street parking, numerous driveways and intersecting streets. Signed 5’ bike lanes along Harris Street.

R Street to Harrison Avenue

44 foot roadway. Residential area with moderate on-street parking. Numerous driveways and intersecting streets. Sharp dip and jog in the street between W Street and Dolbeer Street. Share the road signing, “sharrows” are in place for bikes.

HARRISON AVENUE

Myrtle Avenue to Lucas Street

40 foot roadway. Residential area with moderate on-street parking, numerous driveways and intersecting streets. Center of street is easterly city limits.

Lucas Street to Eire Street

40 foot roadway. Combination of residential, commercial and medical facilities. Hospital zone. Very heavy on-street parking. Very heavy turning movements in and out of medical and commercial establishments. Center of street is easterly city limits.

Eire Street to Harris Street

40 foot roadway. Combination of residential, commercial and medical facilities. Heavy on-street parking near Buhne Street. Numerous driveways and intersecting streets with heavy turning movements. Center of street is easterly city limits.

Harris Street to Manzanita Avenue

40 foot roadway. Combination of residential, retail and medical facilities. Heavy on-street parking near Harris Street. Numerous driveways and intersecting streets. Center of street is easterly city limits.

HENDERSON STREET

Broadway to California Street

42 foot roadway. One way street. Combination of commercial and residential area. Fire station at Ocean Avenue. Curving street in the vicinity of the mall. Moderate on-street parking, numerous driveways and intersecting streets. Signed 5' wide bike lane on right side of street.

California Street to I Street

One way street. 42 foot roadway. Combination of residential and commercial (Henderson Center). High school and elementary school and crosswalks west of Henderson Center. Heavy on-street parking, numerous driveways and intersecting streets. Very heavy turning movements in the Henderson Center area. Signed 5' bike lane on the right side of the street.

I Street to M Street

Two way traffic. Narrow 36 foot roadway. Residential area with heavy on-street parking, numerous driveways and intersecting streets.

M Street to S Street

Narrow 36 foot roadway. Residential area with heavy on-street parking, numerous driveways and intersecting streets.

HODGSON STREET

F Street to N Street

Narrow 36 foot roadway. Primarily a residential area with some commercial development. On-street parking, numerous driveways and intersecting streets.

N Street to W Street

Narrow 36 foot roadway. Primarily a residential area with some commercial development. On-street parking, numerous driveways and intersecting streets. Street has a sharp dip and a reverse curve between N and P Streets.

I STREET

7th Street to 14th Street

One way street with 51 foot roadway. Primarily a residential area with some commercial development near 7th Street. Heavy on-street parking, numerous driveways and intersecting streets.

14th Street to Buhne Street

One way street with a 51 foot roadway. Residential area with an elementary school and crosswalk at Huntoon Street. Heavy on-street parking, numerous driveways and intersecting streets.

Buhne Street to Harris Street

One way street with a 51 foot roadway. Residential area with County facility near Harris

Street. Playground between Buhne and Carson Streets. Heavy on-street parking, numerous driveways and intersecting streets.

J STREET

7th Street to 14th Street

51 foot roadway. Residential area with heavy on-street parking, numerous driveways and intersecting streets. Signed 5' bike lanes on each side of the street.

14th Street to Buhne Street

51 foot roadway. Residential area with high school in the vicinity of Huntoon Street. Very heavy on-street parking, numerous driveways and intersecting streets. School crosswalks near school. Heavy pedestrian traffic. Signed 5' bike lanes on each side of street.

Buhne Street to Harris Street

51 foot roadway. Residential area with heavy on-street parking, numerous driveways and intersecting streets. Signed 5' bike lanes on each side of the street.

M STREET

7th Street to 14th Street

42 foot roadway. Primarily a residential area with a park and playground between 10th Street and 11th Street. Grocery store at 10th Street. Heavy on-street parking, numerous driveways and intersecting streets.

MCCULLENS AVENUE

Broadway to Glen Street

Narrow 36 foot roadway. Residential area with heavy on-street parking and numerous driveways. Grade change east of Iowa Street.

MCFARLAN STREET

Myrtle Avenue to Hillside Drive

Narrow 36 foot roadway. Residential area with heavy on-street parking, numerous driveways. Grade change north of 15th Street.

MYRTLE AVENUE

5th Street to West Avenue

48 foot roadway. Combination of residential, commercial developments and undeveloped land. Fire station located at Cousins Street. Very heavy turning movements in and out of 8th Street to the Cooper Gulch recreation area. Very heavy

traffic volume on street. Congested intersection at West Avenue. Center left turn lane. Signed 5' bike lanes on each side of the street. Parking is not allowed on either side of street.

West Avenue to Harrison Avenue

48 foot roadway. Combination of residential, commercial developments and undeveloped land. Moderate on-street parking. Very heavy turning movements in and out of shopping center near West Avenue. Very heavy traffic volume on street. Congested intersection at West Avenue. Center left turn lane. Signed 5' bike lanes on each side of the street. Parking is not allowed on the north side of the street.

S STREET

County Lane to Buhne Street

40 foot roadway. Primarily a residential area with a middle school south of County Lane. Mid-block school crossing. Moderate on-street parking and some driveways. Steep hill and sharp curve near County Lane. Heavy pedestrian traffic when children are going to and from school.

Buhne Street to Harris Street

40 foot roadway. Residential area with heavy on-street parking, numerous driveways and intersecting streets. Heavy pedestrian traffic when children are going to and from school.

7TH STREET

Broadway to J Street

One way traffic. 40 foot roadway. Commercial area with very heavy on-street parking, numerous driveways and intersecting streets. Heavy vehicular turning movements and parking maneuvers. Heavy pedestrian traffic. Signed 5' bike lane on right side of street.

J Street to O Street

One way street. Narrow 36 foot roadway. Primarily a residential area with some commercial development. Heavy on-street parking, numerous driveways and intersecting streets. Signed 5' bike lane on right side of street.

O Street to Myrtle Avenue

One way street. Narrow 36 foot roadway. Residential area. Heavy on-street parking and numerous driveways. Signed 5' bike lane on right side of street.

6TH STREET

Broadway to J Street

One way street. 42 foot roadway. Commercial area with heavy on-street parking, numerous driveways and intersecting traffic. Heavy pedestrian traffic. Signed 5' bike lane on right side of street.

J Street to O Street

One way street. 42 foot roadway. Primarily a residential area with some commercial development. Heavy on-street parking, numerous driveways and intersecting streets. Heavy cross traffic. Signed 5' bike lane on right side of street.

O Street to Myrtle Avenue

One way street. 42 foot roadway. Residential area with heavy on-street parking and numerous driveways. Signed 5' bike lane on right side of street.

UNION STREET

Wabash Avenue to Harris Street

Narrow 36 foot roadway. Primarily a residential area with some commercial development. Heavy on-street parking, numerous driveways and intersecting streets. Little League field and playground at Carson Street.

Harris Street to South City Limits

40 foot roadway. Residential area with heavy on-street parking and numerous driveways. Sharp reverse curve at Highland Avenue with restricted visibility. School crosswalk at Highland Avenue. Sharp angle in street at Silva Street. Steep downgrade from Silva Street to city limits. Sharp angle in street at city limits.

WABASH AVENUE

Broadway to H Street

51 foot roadway from Broadway to C Street. Narrows to 43 feet between C and F Streets, then to 39 feet from F to H Streets. Combination of commercial establishments and residences. Very heavy on-street parking, numerous driveways and intersecting streets. Heavy cross traffic. Signed 5' bike lanes on each side of the street from Broadway to C Streets.

WEST AVENUE

5th Street to Myrtle Avenue

48 foot roadway. Commercial area with some undeveloped land. Curving roadway. Heavy cross traffic and turning movements around the shopping center near West Avenue. Restricted visibility leaving Burre Center due to curvature in roadway. Heavy traffic congestion near West Avenue. Pedestrian crosswalk with flashing beacon at

Tydd Street. Senior center and residence at Tydd Street.

Myrtle Avenue to 14th Street

40 foot roadway. Primarily a residential area with some commercial development near West Avenue. Heavy on-street parking and numerous driveways. Traffic congestion near West Avenue.

14th Street to County Lane

40 foot roadway. Residential area. Heavy on-street parking, intersecting streets and numerous driveways. Steep hill and reversing curves near County Lane.

APPENDIX "D"

FIELD SURVEY DATA